

DERWENT-ACC-NO: 2005-386511

DERWENT-WEEK: 200539

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TITLE: Hydroforming metal part by introducing high  
pressure fluid to die interior to expand the metal part  
against die interior surface of the die, in which the  
high pressure fluid has pulse applied to the fluid

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PRIORITY-DATA: 2003US-520868P (November 17, 2003)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE
PAGES MAIN-IPC		
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DESIGNATED-STATES: AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN  
CO CR CU  
CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE  
KG KP KR  
KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ OM PG PH  
PL PT RO  
RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM  
ZW AT BE  
BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IS IT KE LS LU  
MC MW MZ  
NA NL OA PL PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO
APPL-DATE		
WO2005049245A1	N/A	2004WO-US38172
November 15, 2004		

INT-CL (IPC): B21D026/02, B21D026/06

ABSTRACTED-PUB-NO: WO2005049245A

BASIC-ABSTRACT:

NOVELTY - Metal part is hydroformed by placing a metal part to be formed within a die; closing the die to enclose the metal part; and introducing a high pressure fluid to an interior of the die for expanding the metal part against an interior surface of the die. The high pressure fluid has a pulse applied to the fluid to increase a material flow of the metal part within the die.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a hydroforming assembly comprising:

(A) die (514) assembly;

(B) blank positioned in the die assembly;

(C) pressurized fluid within the die assembly to force the blank against a wall of the die assembly to conform the blank with the wall of the die assembly; and

(D) pulse-generating device (5) coupled to the pressurized fluid to provide a pulse to the pressurized fluid to create pulsing magnitudes of pressure of the pressurized fluid against the blank to force the blank against the wall of the die assembly.

USE - For hydroforming metal part (claimed).

ADVANTAGE - The use of the pulse flow of pressure increases the material flow in the die thus resulting in a more consistent wall thickness in the part portions. It improves the flow of material to ensure that the wall thickness of the metal part does not become too thin and to prevent the formation of wrinkles, i.e. at bend areas.

DESCRIPTION OF DRAWING(S) - The figure shows schematically of a hydroforming system utilizing the pulse generating device.

Pulse-generating device 5

Fluid line 40

Tubular metal blank 510

Die cavity 512

Die 514

CHOSEN-DRAWING: Dwg.2/2

TITLE-TERMS: HYDROFORMING METAL PART INTRODUCING HIGH PRESSURE FLUID  
DIE

INTERIOR EXPAND METAL PART DIE INTERIOR SURFACE DIE HIGH  
PRESSURE

FLUID PULSE APPLY FLUID

DERWENT-CLASS: M22 P52

CPI-CODES: M22-G03D1;

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